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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,613	02/21/2002	Masatoshi Katayama	218877US2PCT	2566
22850	7590	02/08/2005	EXAMINER	
OBLOK, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			WANG, LEMING	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/049,613

Applicant(s)

KATAYAMA, MASATOSHI

Examiner

Leming Wang

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/21/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1- 4 are rejected under U.S.C. 103(a) as being unpatentable over *Fussgnger* (US Patent No: 5,202,780) in view of *Kunikane et al.* (US Patent No: 5,479,547).

Regarding claim 1, *Fussgnger* teach that a data transmission system (Col.1, lines 7-10) including subscriber units (Col.1, lines 7-10) and a central office unit (Col.1, lines 7-10) which are interconnected via optical fibers (Col.1, lines 63-64; 1 Fig.1; Col.6, line 50), the central office unit multiplexing a video signal (11, 15 Fig.1) with signals other than the video signal (12, Fig.1, Col.3, lines 27-30) to deliver them to the multiple subscriber units (Tl1, ..., Tln, Fig.1), and each subscriber unit demultiplexing (Mb1, Fig.3; Tl1, ..., Tln, Fig.1) a received signal, wherein each of said subscriber units comprises a wavelength division multiplexer / demultiplexer (Mb1, Fig.3; Tl1, ..., Tln, Fig.1).

Fussgnger differs from the claimed invention in that *Fussgnger* does not teach a wavelength division multiplexer / demultiplexer having a function of eliminating a particular wavelength signal.

However, *Kunikane et al.* from the same field of endeavor disclose a wavelength demultiplexing apparatus for eliminating a wavelength by reflecting it (Abstract, lines 7-9, Fig.3). Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention to incorporate a wavelength demultiplexing apparatus, such as the one taught by *Kunikane et al.*, in the transmission system of *Fussgnger* to reject any unwanted wavelength signal.

Regarding claim 2 - 4, *Fussgnger* differs from the claimed invention in that *Fussgnger* does not teach a wavelength division multiplexer / demultiplexer having a function of reflecting the particular wavelength signal to reject its input, a wavelength division multiplexer / demultiplexer comprises a reflecting layer for reflecting the particular wavelength signal at an input end surface of an optical fiber of the subscriber unit, a wavelength division multiplexer / demultiplexer consists of a dielectric multilayer filter.

However *Kunikane et al.* further disclose a wavelength multiplexing / demultiplexing apparatus with a reflecting film (26, Fig.3), and the reflecting film is made of multiplayer filter consists of a dielectric multilayer filter (Col.4, lines 47-48). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a multiplexer/demultiplexer, such as the one of *Kunikane et al.*, in the modified communication system by *Fussgnger* to cut off one wavelength signal at the end of the waveguide of the multiplexer/demultiplexer and transmit the rest to a subscriber.

3. Claim 5 is rejected under U.S.C. 103(a) as being unpatentable over *Fussgnger* (US Patent No: 5,202,780) in view of *Kunikane et al.* (US Patent No: 5,479,547) and in further view of *Rivoallan* (US Patent No: 6,130,974)

Regarding claim 5, the modified communication system of *Fussgnger* and *Kunikane et al.* differs from the claimed invention in that *Fussgnger* and *Kunikane et al.* do not teach an optical fiber with a core and a cladding that covers an external surface

of the core, and that has multiple notches formed on the cladding to reflect the particular wavelength signal.

However, *Rivoallan* from the same field of endeavor teaches an optical fiber with a core (12, Fig.1) and a cladding that covers an external surface of the core (11, Fig.1), and that has multiple notches formed on the cladding (D_{\max} and D_{\min} , Fig.1) to reflect the particular wavelength signal (1530nm, Fig.7A and B). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a multi-notched fiber, such as the one taught by *Rivoallan*, for the fiber in the modified optical communication system of *Fussgnger* and *Kunikane et al.* in order to cut off a wavelength by attenuation or reflection.

4. Claim 6 is objected is rejected under U.S.C. 103(a) as being unpatentable over *Fussgnger* (US Patent No: 5,202,780) in view of *Kunikane et al.* (US Patent No: 5,479,547) and in further view of *Ellison et al.* (US Patent No: 6,556,757).

Regarding claim 6, the communication system modified by *Fussgnger* and *Kunikane et al.* differs from the claimed invention in that *Fussgnger* and *Kunikane et al.* do not teach the wavelength division multiplexer/demultiplexer comprises an optical waveguide that is made of a polymer and absorbs a signal with a wavelength of 1650 nm, which is employed as the particular wavelength signal.

However, *Ellison et al.* from the same field of endeavor teach an optical fiber made of a polymer (Col.2, line 26) and absorbs a signal with a wavelength of 1650 nm, which is employed as the particular wavelength (absorption about 1db per meter at 1650nm, Fig.7). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a fiber, such as the one of *Ellison et al.*, for the fiber in the subscriber transmission system modified by *Fussgnger* and *Kunikane et al.* to obtain effective attenuation for a wavelength by absorbing it in both core and cladding layer.

5. Claims 7- 8 are rejected under U.S.C. 103(a) as being unpatentable over *Fussgnger* (US Patent No: 5,202,780) in view of *Feldman et al.* (US Patent No: 6,577,414) and in further view of *Kunikane et al.* (US Patent No: 5,479,547).

Regarding claims 7- 8, *Fussgnger* teach that a data transmission system (Col.1, lines 7-10) including subscriber units (Col.1, lines 7-10) and a central office unit (Col.1, lines 7-10) which are interconnected via optical fibers (Col.1, lines 63-64; 1 Fig.1; Col.6, line 50), the central office unit multiplexing a video signal (11, 15 Fig.1) with signals other than the video signal (12, Fig.1, Col.3, lines 27-30) to deliver them to the multiple subscriber units (TI1, ..., TIn, Fig.1), and each subscriber unit demultiplexing a received signal (Mb1, Fig.3; TI1, ..., TIn, Fig.1). Regarding claim 7, *Fussgnger* further teach that the central office unit comprising an optical distributor (Col.4, lines 5-6; 20 Fig.1) for distributing the video signal and supplying it to a wavelength division multiplexer / demultiplexer.

The communication system of *Fussgnger* differs from the claimed invention in that *Fussgnger* does not teach an optical amplifier for amplifying the video signal to be transmitted.

However, *Feldman et al.* from the same field of endeavor teach using an optical amplifier (114, 128, Fig.1) for amplifying the video signal to be transmitted. Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate an optical amplifier, such as the one of *Feldman et al.*, in the central office of the transmission system of *Fussgnger* in order to increase the signal strength to further increase the transmission distance.

The communication system modified by *Fussgnger* and *Feldman et al.* further differs from the claimed invention in that *Fussgnger* and *Feldman et al.* do not teach a wavelength division multiplexer / demultiplexer having a function of eliminating a particular wavelength signal.

However, *Kunikane et al.* from the same field of endeavor disclose a wavelength demultiplexing apparatus for eliminating a wavelength by reflecting it (Abstract, lines 7-9, Fig.3). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a demultiplexer, such as the one of *Kunikane et al.*, in the modified communication system by *Fussgnger* and *Feldman et al.* in order to reject one wavelength and transmit the rest.

Regarding claim 8, *Fussgnger* further teach that an optical distributor (21 Fig.1; MB1 and MB8, Fig.3) for distributing the video signal (Col.4, lines 5-6; 21 Fig.1) to a second wavelength division multiplexer (22 and 25, Fig.1) and an optical distributor for distributing the video signal (Col.4, lines 5-6; 21 Fig.1) to a second wavelength division multiplexer (22 and 25, Fig.1).

The communication system of *Fussgnger* differs from the claimed invention in that *Fussgnger* does not teach that central office unit comprising a plurality of video signal generators for generating video signals with different wavelengths; a first wavelength division multiplexer / demultiplexer for multiplexing the video signals supplied from said plurality of video signal generators; an optical amplifiers for amplifying the video signals output from said first wavelength division multiplexer / demultiplexer; wherein each of a subscriber units comprises a wavelength division multiplexer / demultiplexer with a function of eliminating a particular wavelength signal.

However, *Feldman et al.* teach using a central office unit that comprises of a plurality of video signal generators for generating video signals with different wavelengths (Col.4, lines 3-4, 5, 10; $\lambda_1, \lambda_2, \dots, \lambda_n$, Fig.4), a first wavelength division multiplexer / demultiplexer ($\lambda_1, \lambda_2, \dots, \lambda_n, \lambda$ MUX, Fig.4) for multiplexing the video signals supplied from said plurality of video signal generators for demultiplexing the video signals and signals other than video signal and a second wavelength division multiplexer / demultiplexer (λ MUX after amp 437 in 126, Fig.4). *Feldman et al.* also teach an optical amplifier (128, Fig.1; 437, Fig.4) for amplifying the video signal to be

transmitted in a subscriber fiber-to-the-home CATV broadcast system (180, Fig.1). Accordingly, it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate an optical amplifier, a plurality of video signal sources with different wavelengths and two wavelength division multiplexer / demultiplexers, such as those taught by *Feldman et al.*, in the central office unit of the communication system modified by *Fussgnger* in order to enhance the video signal obtained from many video signal sources with different wavelengths multiplexed by a wavelength division multiplexer / demultiplexer together with the signal other than video signals to be sent to another demultiplexer to provide subscribers various types of signals with higher intensity.

The communication system modified by *Fussgnger* and *Feldman et al.* differs from the claimed invention in that *Fussgnger* and *Feldman et al.* do not teach each of said subscriber units comprises a wavelength division multiplexer / demultiplexer with a function of eliminating a particular wavelength signal.

However, *Kunikane et al.* disclose a wavelength multiplexing/demultiplexing apparatus to delete a wavelength by reflecting it (Abstract, lines 7-9, Fig.3). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a multiplexer/demultiplexer, such as the one of *Kunikane et al.*, in the modified communication system by *Fussgnger* and *Feldman et al.* in order to cut a specific wavelength.

6. Claim 9 is rejected under U.S.C. 103(a) as being unpatentable over *Fussgnger* (US Patent No: 5,202,780) in view of *Schmack et al.* (US Patent No: 4,481,621 and in further view of *Kunikane et al.* (US Patent No: 5,479,547).

Regarding claims 9, *Fussgnger* teach that a data transmission system (Col.1, lines 7-10) including subscriber units (Col.1, lines 7-10) and a central office unit (Col.1, lines 7-10) which are interconnected via optical fibers (Col.1, lines 63-64; 1 Fig.1; Col.6, line 50), the central office unit multiplexing a video signal (11, 15 Fig.1) with signals

other than the video signal (12, Fig.1, Col.3, lines 27-30) to deliver them to the multiple subscriber units (T11, ..., TIn, Fig.1), and each subscriber unit demultiplexing a received signal (Mb1, Fig.3; T11, ..., TIn, Fig.1).

The communication system of *Fussgnger* differs from the claimed invention in that *Fussgnger* does not teach that the subscriber unit comprising a first wavelength division multiplexer / demultiplexer for demultiplexing the video signals and signals other than video signal; and a second wavelength division multiplexer/demultiplexer with a function of eliminating a particular wavelength signal.

However, *Schmack et al.* from the same field of endeavor teach a subscriber unit (Fig.2) comprises of a wavelength division multiplexer / demultiplexer (BB-DMUX, Fig.2) for demultiplexing the video signals and signals other than video signal (BB-DMUX, TV, ST, SB, Fig.2; Col.2, lines 65-67); and another wavelength division multiplexer / demultiplexer signals (SB-DMUX, ISDN, Fig.2). Accordingly it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate multiplexer / demultiplexers, such as the ones of *Schmack et al.*, for the demultiplexer in the subscriber units of the communication system of *Fussgnger* in order for the received signals to be demultiplexed in the first multiplexer/demultiplexers into the original video signals and signals other than video signal and send one of them to a second wavelength division multiplexer / demultiplexer to be demultiplexed for further signal processing.

The communication system of *Fussgnger* and *Schmack et al.* differs from the claimed invention in that *Fussgnger* and *Schmack et al.* do not teach the second wavelength division multiplexer / demultiplexer having a function of eliminating a particular wavelength signal.

However, *Kunikane et al.* disclose a wavelength multiplexing / demultiplexing apparatus for cutting off a wavelength by reflecting it (Abstract, lines 7-9, Fig.3). Therefore it would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate a multiplexer/demultiplexer, such as the one of *Kunikane et al.*, in the demultiplexer unit in the modified transmission system of

Fussgnger and *Schmack et al.* in order to cut off a selected wavelength and transmit the rest.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. *Beierle et al.*, US patent No: 6,538,781 , is about multimedia distribution system.

2. *Bhauk et al.*, US patent No: 4,545,048, is about service integrated digital transmission system.

3. *Wong et al.*, US patent No: 6,208,444, is showing a multi-cavity Etalon demultiplexer.

4. *Nitta et al.*, US patent No: 6,334, 014, is about fiber end multiplexer / demultiplexer apparatus.

5. *Pan*, US Patent No: 6,147,786, is about hybrid analog/digital access network with mini-digital optical node.

6. *Schussler*, US Patent No: 4,441,180, service integrated communication transmission and interchange system.

7. *Heidemann, et al.*, US patent No: 5,517,232, is about cable television distribution network with video-on-demand transmission.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leming Wang whose telephone number is 571 272 3030. The examiner can normally be reached on 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272 3112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lw


M. R. SEDIGHIAN
PRIMARY EXAMINER